

REMARKS

In response to the above-noted Office Action, Applicant has amended the claims in order to more particularly point out and distinctly claim the subject matter of the present invention without adding any new matter. Independent claims 1 and 9 have been amended by including the subject matter to distinguish over the prior art namely, “wherein the filtering means uses a window method using window functions of Kaiser, Hamming, Hanning, and Blackman” and “wherein, the filtering step, utilizes a window method using window functions of Kaiser, Hamming, Hanning, and Blackman”, as disclosed in paragraph [0054].

Claim Rejections –35 USC 103:

Claim 1 and 9 are rejected under 35 USC 103(a) as being unpatentable over AAPA (Applicant Admitted Prior Art (hereinafter AAPA), in view of NPL “Challenges in Portable RF Transceiver Design”, IEEE Magazine, September 1996, pp 13-25, by Hehzad Razavi (hereinafter Razavi).

As to the baseband signal configuring means, pilot adding means, up-sampling means and filtering means, the Examiner relies upon the AAPA as asserted in the prior Office Actions. Since Figure 3 which is the AAPA, shows these elements, it is apparent that it is the first and second digital-to-analog converting means, the first and second RF up-converting means and the adding means configuration which is relied upon to distinguish over the prior art.

In this connection, the Examiner contends these distinguishing elements are met by newly cited Razavi, in particular Figure 15 and the description at pages 20-21 as set forth at page 4 of the Action. Although Razavi does show two digital-to-analog converters which have as an input in-phase (I) and quadrature (Q) signals and a summer which adds the converted (I) and (Q) signals together, the claim elements relied upon to distinguish over the prior art do not appear to be met by Razavi.

The first digital-to-analog converting means, as claimed, is for converting the filtered-in phase (I) signal into a first analog signal. The filtered-in phase (I) signal is a signal which is output by a filtering means which filters an up-sampled baseband signal with a pilot signal added thereto so as to generate the filtered in-phase (I) signal and the filtered quadrature (Q) signal. As shown in Figure 15 of Razavi, the inputs to the two digital-to-analog converters are the over-sampled (I) and (Q) signals. That is, digitized signals with no filtering applied. Similarly, accordingly to the invention, the second digital-to-analog converting means is for converting the filtered quadrature (Q) signal into a second analog signal. In Razavi, the digital-to-analog converter operates on the raw over-sampled (Q) signal.

According to the invention, the first radio frequency (RF) up-converting means is for “directly up-converting the first analog signal into a first (RF) signal.” This means, as shown for example in Figure 5, the output of the two DACs in block 550 are directly connected to the (RF) up-converting unit 561 for the (I) signal. Although it is unclear if Razavi in fact teaches an (RF) up-converting unit, it is clear that the output of the DAC used for the over-sampled (I) signal is provided to an LPF (presumably low-pass filter) before being provided to the next block. Thus, even if the next block is a radio frequency up-converting means, it does not directly up-convert the first analog signal as required by the claims since the first analog signal in Razavi first goes through the LPF. Similarly, with respect to the over-sampled (Q) signal in Razavi, rather than going directly from the DAC to the RF up-converting unit 562, in Razavi, the output of a DAC first goes through an LPF.

As such, combining the AAPA with Razavi would not result in the invention as claimed in Claim 1. Claim 9, which has similar limitations, is also not met by the combination of prior art as relied upon by the Examiner.

Regarding the rejection of Claims 6-8 and 14-16 as being unpatentable over AAPA in view of Razavi and Winters et al., Winters et al. relied upon for its teaching of an ER filter to meet the limitations of the rejected dependent claims does not provide any teachings relevant to the elements which distinguish over the combination of AAPA and Razavi. Thus, Claims 6-8 and 14-16 are patentably distinguishable over the prior art for at least the same reasons as their respective independent claims 1 and 9.

However, in order to more clearly distinguish the claims over the prior art, independent Claims 1 and 9 have been amended to include the further limitations wherein the filtering means uses/or wherein the filtering step utilizes a window method using window functions of Kaiser, Hamming, Hanning and Blackman.

In this connection, Applicant notes that to meet the filtering means element of the invention, the Examiner relies upon AAPA; Figure 3: 340, page 3, lines 1-28. However, in rejecting Claim 6 which contains the further limitation that the filtering means includes an Equi-Ripple (ER) filter and uses a window method, the Examiner cites Winters for its teaching of a Parks-McClellan Optimal Equi-Ripple filter as a low pass filter with appropriate windowing type and length for improving wireless communication performance. However, since Winters et al. does not teach the claimed window method using window functions of Kaiser, Hamming, Hanning and Blackman, and since none of the other references contain such teaching, Applicant submits that Claims 1 and 9 are patentably distinguishable over the prior art on this further basis.

Claims 6, 8, 14 and 16 are amended in view of the amendments which were made to Claims 1 and 9. Claims 6, 8, 9, 14 and 16 depend from Claim 1, or Claim 9, and add further limitations thereto. Accordingly, such claims are also patentably distinguishable over the prior art for at least the same reasons as Claims 1 and 9.

Conclusion

Therefore, the pending claims inclusive of the amended claims now clearly show the subject matter of the invention. Applicant believes that all pending claims are now patentable by overcoming the Examiner's rejections.

Accordingly, Applicant submits that the claims pending for examination, namely Claims 1, 6, 8, 9, 14 and 16, are now in condition for allowance, which early action is requested.

If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666. If a telephone interview would expedite the prosecution of this Application, the Examiner is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,

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